

CLAIMS

1. A fluid pressure actuator comprising:
an actuator body which expands and contracts through supply/discharge of a fluid to generate a driving force;
a sensor for detecting a condition of the actuator body; and
a control part for controlling a fluid regulator for adjusting a pressure of the fluid supplied to and discharged from the actuator body based on a detection signal from the sensor,
wherein the sensor is mounted in the actuator body.
2. The fluid pressure actuator according to Claim 1, wherein the sensor is a pressure sensor for detecting the pressure in the actuator body.
3. The fluid pressure actuator according to Claim 1, wherein the sensor is a length sensor for detecting the length of the actuator body.
4. The fluid pressure actuator according to Claim 3, wherein the length sensor has a sensor body and a length measurement spring connected between the sensor body and the actuator body, and
the sensor body detects a change in a tensile force due to the length measurement spring.

5. The fluid pressure actuator according to Claim 1, wherein both a pressure sensor for detecting a pressure in the actuator body and a length sensor for detecting a length of the actuator body are mounted in the actuator body as the sensor.

6. The fluid pressure actuator according to any one of Claims 1 through 5, wherein the sensor and the control part are provided on a common circuit board, and the circuit board is mounted on the actuator body so that the sensor faces the interior of the actuator body.

7. The fluid pressure actuator according to Claim 6, wherein the circuit board is formed by a hybrid IC.

8. The fluid pressure actuator according to Claim 6 or 7, wherein an end sealing member is fixed to one end of the actuator body, and

the circuit board is fixed to the end sealing member.

9. The fluid pressure actuator according to any one of Claims 1 through 8, wherein the control part controls the fluid regulator based on a pressure control signal from a host computer and a detection signal from the sensor.

10. The fluid pressure actuator according to Claim 9, wherein the control part has processing means for generating a command signal so that an output pressure of the fluid regulator becomes a target pressure according to the pressure control signal.

11. The fluid pressure actuator according to Claim 10, wherein the processing means is a CPU, and the control part has an A/D converter for A/D-converting the detection signal from the sensor and inputting the A/D converted detection signal to the CPU, and a D/A converter for D/A-converting the command signal from the CPU and outputting the D/A converted command signal to the fluid regulator.

12. The fluid pressure actuator according to any one of Claims 9 through 11, wherein the control part has an I/O port receiving a pressure control signal from the host computer.

13. The fluid pressure actuator according to any one of Claims 9 through 12, wherein the control part has storage means storing specific addresses, and

of the pressure control signals from the host computer, only a signal of a corresponding address is processed by the control part.

14. The fluid pressure actuator according to any one of Claims 9 through 13, wherein the control part has storage means storing a program for communication with the host computer.

15. The fluid pressure actuator according to any one of Claims 1 through 5, wherein the control part is provided on the fluid regulator.